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SPECIFICATION FOR CORRUGATED FIBREBOARD BOXES FOR PACKING CIGARETTES

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 3 *September* 1982

AMENDMENT NO. 1 OCTOBER 1997
TO
IS 10066 : 1981 SPECIFICATION FOR CORRUGATED FIBREBOARD BOXES FOR PACKING CIGARETTES

(*Page* 3, *clause* **0.2**, *line* 2) — Substitute '1990' *for* '1977'.

(*Page* 3, *footnote with* '*' *mark*) — Substitute '(*second revision*)' *for* '(*first revision*)'.

(*Page* 4, *clause* **2.1**, *line* 2) — Substitute '1990' *for* '1977'.

(*Page* 4, *footnote with* '‡' *mark*) — Substitute '(*second revision*)' *for* '(*first revision*)'.

(*Page* 5, *clause* **6.2**, *last sentence*) — Delete.

(*Page* 6, *clause* **9.1**, *line* 2) — Substitute '1985' *for* '1972'.

(*Page* 6, *footnote with* '†' *mark*) — Insert '(*first revision*)' at the end.

(*Page* 6, *clause* **9.2**, *line* 3) — Substitute '1985' *for* '1966'.

(*Page* 6, *footnote with* '‡' *mark*) — Insert '(*first revision*)' at the end.

(*Page* 6, *clause* **9.3**, *line* 3) — Substitute '1987' *for* '1973'.

(*Page* 6, *footnote with* '§' *mark*) — Insert '(*first revision*)' at the end.

(*Page* 6, *clause* **9.4**) — Insert the following new clause after **9.4**:

'**9.5 Flap Bend Test** — The flaps of the box shall be capable of being folded through 180° inside and then 180° outside along the line of creasing without cracking of the board or facing.'

[*Page* 8, *Table* 1, *Sl No.* (ii), *col* 2] — Substitute '**9.5**' *for* '**6.2**'.

(CHD 016)

Reprography Unit, BIS, New Delhi, India

Indian Standard

SPECIFICATION FOR CORRUGATED FIBREBOARD BOXES FOR PACKING CIGARETTES

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(*Continued on page* 9)

Indian Standard

SPECIFICATION FOR CORRUGATED FIBREBOARD BOXES FOR PACKING CIGARETTES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 31 December 1981, after the draft finalized by the Paper and Flexible Packaging Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 The general requirements of corrugated fibre boxes for transportation of goods have been covered in IS : 2771 (Part I)-1977*. For the packing of cigarettes, special significance is laid on the compression strength of the empty box, as otherwise the contents may be severely crushed or deshaped under the compression load during stacking of the boxes in storage and transportation. This may affect the acceptability of the contents.

0.3 The strength requirements given in this standard are for 2 types of boxes. Type 1 covering corrugated fibreboard boxes used for the transportation of goods by defence forces, and Type 2 those being used for civil distribution purposes. The defence handling and transportation conditions being quite severe, the strength requirements given for Type 1 boxes are also on the higher side. Type 1 boxes are recommended for export purposes also.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements of corrugated fibreboard boxes for the packing of 10 000 cigarettes, in unit packs of 200's, or 250's/500's required for civilian or defence use in the country.

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*Specification for corrugated boxes. Part I Corrugated fibreboard boxes (*first revision*).

†Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.1 For the purpose of this standard the definitions given in IS : 4261-1967*, IS : 7186-1973† and IS : 2771 (Part I)-1977‡ shall apply.

3. TYPES

3.1 The boxes have been categorized under 2 types as follows·

a) Type 1 — Double wall corrugated fibreboard boxes used for defence supplies purposes; and

b) Type 2 — Single or double wall corrugated fibreboard boxes for civilian use.

4. IDENTIFICATION OF CONTAINER FACES

4.1 General — Container faces shall be identified by numbers as shown in Fig. 1.

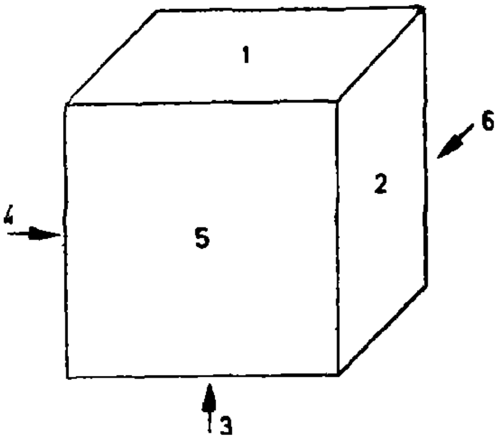

FIG. 1 IDENTIFICATION OF FACES

4.1.1 Edges shall be identified by numbers on the 2 faces adjacent to the edges, for example 2-5 means the vertical edge formed by faces 2 and 5.

4.1.2 Corners shall be identified by numbers on the 3 faces adjacent to the corners, for example 1-2-5 means the right-hand top corner formed by the faces 1, 2 and 5.

---

*Glossary of terms relating to paper and pulp based packaging materials.

†Glossary of terms relating to paper and flexible packaging.

‡Specification for corrugated boxes : Part I Corrugated fibreboard boxes (*first revision*).

4.1.3 For the orientation of the container for the purpose of identification of faces, the container shall be placed in the preferred position, if any, for transport and this shall be the overriding factor in identification (*see* **4.1.4**).

4.1.4 *Container Having a Preferred Position for Transport* — The container shall be placed in the preferred position for transport, facing so that the manufacturer's or packer's joint forms either a vertical or a horizontal edge of the face towards the observer. The faces shall then be numbered as in Fig. 1.

5. MATERIAL

5.1 The following material shall be used for the manufacture of boxes.

5.1.1 *Corrugated Fibreboard* — Single and double wall corrugated fibreboard meeting the requirements given in **9** shall be used. The fibreboard shall have good bending qualities and shall have Type B corrugations (flutes), unless otherwise stated.

5.1.2 Type 1 boxes shall be lined on one face with bitumen laminated kraft paper for waterproofing purpose.

5.1.3 *Adhesive* — Any suitable adhesive capable of firmly fixing the various plies together shall be used. Sodium silicate or any other highly alkaline adhesive shall not be used for fixing the facings.

5.1.4 *Staples* — Mild steel, galvanized, 0.625 mm thick × 13 mm crown × 3 mm wide, shall be used for stapling the manufacturer's joint.

6. MANUFACTURE, WORKMANSHIP AND FINISH

6.1 The boxes shall be manufactured from one piece of fibreboard, scored and slotted to form a body piece having 4 flaps for closing each of the opposite ends The flaps along the longer edge shall form the outer flaps and those along the shorter edge shall form inner flaps. All flaps shall be of equal length and the outer flaps shall meet when closed (*see* style 201 & 202 of IS : 6481-1971*).

6.2 The blank shall be properly creased and slotted, so that when the box is assembled there shall be no holes at the corners. The flaps of the box shall be capable of being folded 180° along the line of creasing without fracture of the board or facings.

6.3 The body joint shall be lapped and the lapping shall not be less than 3 cm. The lapped joint shall be secured by staples — free from rust, not protruding, and angled.

---

*Guide for principal uses and styles of fibreboard containers.

The spacing between the stitches shall not be more than 60 mm. The distance between the outer staples and the end joint shall not exceed 25 mm.

7. DIMENSIONS AND TOLERANCES

7.1 The internal dimensions of the assembled box shall be as agreed to between the purchaser and the supplier

7.2 A tolerance of ± 3 mm shall be permissible on the ordered individual dimensions.

8. SAMPLING, CONDITIONING AND TESTING

8.1 Sampling — A consignment shall be sampled within 7 days of the receipt by the purchaser. The sampling and test schedule shall be as given in Appendix A.

8.2 Conditioning — The sample of boxes so selected shall be deemed to represent the whole consignment of boxes and shall be conditioned for testing by the method prescribed in 5 of *IS : 1060 (Part I)-1966**.

9. CORRUGATED FIBREBOARD REQUIREMENTS

9.1 Puncture Resistance — When tested in accordance with IS : 4006 (Part II)-1972† the puncture resistance of the fibreboard shall not be less than 200 beach units for Type 1 boxes and 100 beach units for Type 2 boxes.

9.2 Water Absorption of the Outer Surface (30 Minutes Cobb Test) — When determined in accordance with the method prescribed in **6** of IS : 4006 (Part I)-1966‡, the increase in the mass of the board due to water absorption on the outer surface of the board shall not exceed 155 g/m^2.

9.3 Compression Strength of the Box — The complete empty boxes conditioned at a temperature of 27 ± 2°C and 65 ± 2 percent RH shall be tested as per the method given in IS : 7028 (Part VI)-1973§ The average compression strength of the empty box (top/bottom) at a deflection of not more than 20 mm shall not be less than equivalent of load of 2 kg and 1 kg per centimetre of the base for Type 1 and Type 2 boxes respectively.

9.4 Printability — The nature of the outer surface of the box shall permit marking by stamping, stencilling or printing.

---

*Methods of sampling and test for paper and allied products, Part I (*revised*).

†Methods of test for paper and pulp based packaging materials. Part II.

‡Methods of test for paper and pulp based packaging materials. Part I

§Performance tests for complete, filled transport packages. Part VI Compression test.

10. PACKING AND MARKING

10.1 The boxes shall be packed and supplied as agreed to between the purchaser and the supplier.

10.2 Each box shall be legibly marked on the outside with the following particulars:

a) Dimensions (L + W + D),

b) Batch or lot number,

c) Manufacturer's name or trade-mark, and

d) Any other information as required by the purchaser.

10.2.1 The corrugated fibreboard boxes may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

APPENDIX A

(*Clause* 8.1)

SAMPLING AND TEST SCHEDULE

A-1. SAMPLING

A-1.1 From each consignment of 10 000 boxes or part thereof a sample consisting of 20 complete boxes shall be chosen as follows:

a) Bundles — 20 bundles shall be chosen from the consignment at random from each of these bundles 1 completed box shall be chosen at random.

b) Loose deliveries — 20 complete boxes shall be chosen at random.

From the sample so chosen, the number of boxes to be selected for testing, and the number of tests to be carried out on each selected box shall be in accordance with the requirements of Table 1.

TABLE 1 SCHEDULE OF TESTING

SL NO	TYPE OF TEST	NO OF BOXES TO BE SELECTED FROM SAMPLE FOR TESTING	NO OF TEST SPECIMENS OBTAINED FROM EACH BOX	NO. OF TEST ON EACH SPECIMENS
(1)	(2)	(3)	(4)	(5)
i)	Substance (if specified)			
	a) for corrugating medium	3	2	1
	b) for combined weight of liners			
ii)	Flap bend test (6.2)	3	2	—
iii)	Puncture resistance (9.1)	3	5	1
iv)	Water absorption of the outer surface (30 minutes cobb) (9.2)	3	5	(on external surface only)
v)	Compression strength (9.3)	5	1	1

NOTE — A box selected to provide test pieces for one test (for example, the flap bend test) may be used to provide test pieces for other tests

A-2. ACCEPTANCE

A-2.1 A consignment of boxes shall be deemed to comply with this standard if all of the boxes tested give test results which are within specified limits.

If only one of the test boxes fails to satisfy one or more of the test requirements, the provisions of **A-3** shall apply

A-3. RE-TESTING

A-3.1 For re-testing purposes, twice the number of complete containers originally tested shall be chosen at random from the same consignment, all of which shall satisfy the requirements of the standard for the test requirements to be verified.

(*Continued from page* 2)

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Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 $kg.m/s^2$
Energy	joule	J	1 J = 1 N m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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